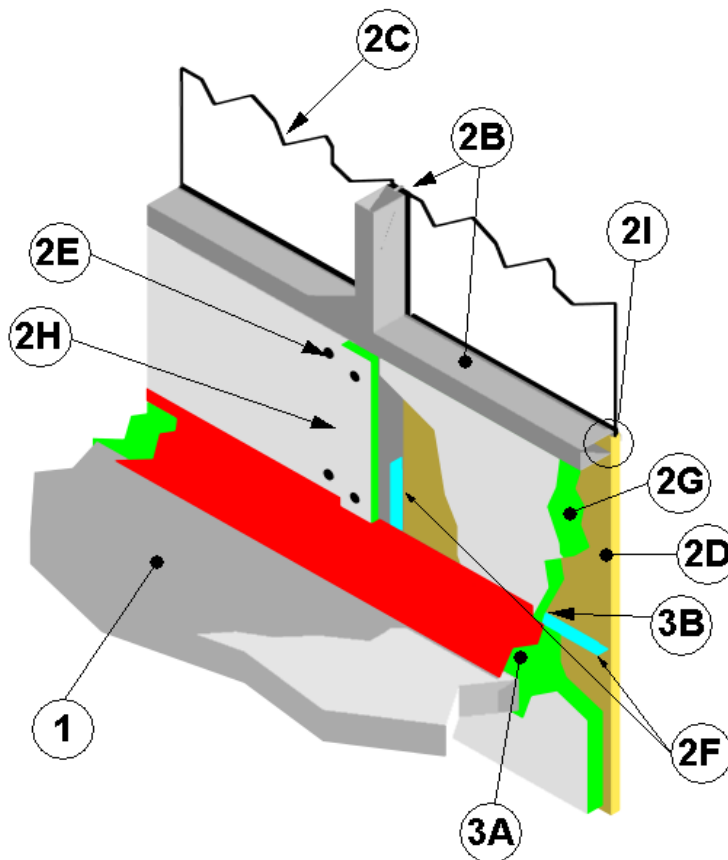


3M Company
Design No. 3MU/JS 120-21
Perimeter Fire Barriers
ASTM E2307/ASTM E1399/UL 2079

	FireDam™ Spray 200, Fire Barrier Watertight Spray, Fire and Water Barrier Tape FWBT, Fire Barrier 1000 NS Silicone Sealant, and Fire Barrier 1003 SL Silicone Sealant		
	50% Compression	33% Compression	25% Compression
F-Rating	2 Hr	2 Hr	2 Hr
T-Rating	2 Hr	1 Hr	1/2 Hr
L-Rating (UL 2079)	<1.0 SCFM/LF	<1.0 SCFM/LF	<1.0 SCFM/LF
Cycling (%)	Class IV: 500 cycles @ 30 cpm	Class IV: 500 cycles @ 30 cpm	Class IV: 500 cycles @ 30 cpm
Horizontal	± 16.7	± 11	± 5
Vertical	± 6.25	0	0

‡: Fire Barrier Watertight Spray cycling rating limited to ±10% horizontal movement





1. **CONCRETE FLOOR ASSEMBLY:** 2 hour rated concrete floor assembly made from either lightweight or normal weight concrete with a density of 100 to 150 pcf, having a min. thickness of 4-1/2 in. at the joint face. When a longitudinal recess (blockout) is required to contain an architectural joint system, increase concrete floor assembly thickness to maintain a min. thickness of 4-1/2 in. and accommodate depth of blockout formed in the concrete: blockout width unrestricted.
2. **CURTAIN WALL ASSEMBLY:** Incorporate the following construction features:
 - A. **MOUNTING ATTACHMENT – (Not Shown)**
Attach the curtain wall framing (Item 2B) to the structural framing according to the curtain wall manufacturer's instructions. When required, connect the mounting attachments to the joint face of the concrete floor assembly (Item 1) according to the curtain wall manufacturer's instructions. Limit distance between mounting attachments to max. 120 in.
 - B. **ALUMINUM FRAMING –** Use hollow rectangular aluminum extruded tubing with min. overall dimensions of 0.100 in. thick, 5-1/2 in. high, and 2-1/2 in. wide. Add covers to mullion and transom on the external side of the framing: creates total framing depth of nominal 8 in. Locate mullions (vertical aluminum framing) min. 60 in. on center (oc) and locate transoms (horizontal aluminum framing) a min. 10 in. oc. For the spandrel region, locate the upper transom flush with the concrete floor assembly (Item 1) as measured from the top surface of the concrete floor assembly (Item 1) to the underside of the transom (horizontal aluminum framing).
 - C. **VISION GLASS PANELS –** Size and install vision glass panels to aluminum framing (Item 2B) according to the curtain wall system manufacturer's guidelines. Use a min. 1/4 in. thick clear, heat strengthened (HS) glass or tempered glass with a max. width and height less than the aluminum framing (Item 2B) oc spacing, which allows the glass to be secured between the notched shoulder of the aluminum framing and pressure bar. Secure panels with a thermal break (thermo-set rubber extrusion), pressure bar (aluminum extrusion), min. 1/4-20 × 5/8 in. long screws, and a snap face (aluminum extrusion).
 - D. **SPANDREL PANELS –** Use nominal 1-3/16 in. thick, polished granite panels having nominal 1 in. thick edges. Size panels in accordance with the perimeter boundary requirements for the spandrel framing, as described in Item 2B. Install panels with aluminum pressure plates, glazing gaskets, and steel screws in accordance with the curtain wall manufacturer's instructions.
 - E. **IMPALING PINS –** Use min. 12 GA steel pins, locate, size, and install according to the curtain wall system manufacturer's guidelines, or be a min. 1/2 in. longer than the thickness of the curtain wall insulation. Attach pins to a nominal 2 in. × 2 in. clip angle constructed with 20 GA galvanized sheet steel, and secure the clips to the aluminum framing (Item 2B) with No. 10, self-tapping, sheet metal screws. Space pins a max. of 12 in. oc on the vertical framing members, and a max. of 20 in. oc on the horizontal framing members that make up the perimeter of the spandrel area. Install the interior face of the curtain wall insulation (Item 2F) so that it is flush with



the interior face of the aluminum framing (Item 2B).

- F. **REINFORCING ANGLE** – Mount a min. 1-1/2 in. × 1-1/2 in. 20 GA galvanized steel angle to the vertical framing members so that the vertical leg serves as a backer to the exterior face of the curtain wall insulation (Item 2G) and the horizontal leg extends away from the curtain wall insulation (Item 2G), and locate at the centerline of the perimeter joint protection (Item 3). Size the angle 8 in. longer than the span between the interior edges of the vertical framing members and form the angle so that it has a 4 in. vertical leg on each end. Secure the 4 in. vertical leg to the vertical framing member on each side with three No. 10, steel, self-tapping, sheet metal screws placed in a triangular fashion with a max. spacing of 2 in. oc.
- G. **CURTAIN WALL INSULATION** – Use nominal 24 in. wide, 4 in. thick 4 pcf density, 3 in. thick 6 pcf density, or 2 in. thick 8 pcf density, mineral wool batt insulation faced on one side with aluminum foil scrim (vapor retarder), which is exposed to the room interior and installed in the stud cavity. Install curtain wall insulation between aluminum framing (Item 2B). Secure curtain wall insulation with clips, impaling pins, or friction fit using curtain wall insulation length at least 1/4 in. longer than the distance between aluminum framing (Item 2B). Seal all meeting edges of curtain wall insulation with nominal 4 in. wide pressure sensitive aluminum foil-faced tape (not shown) centered over the junction so that approximately 2 in. of tape covers each edge of the adjacent curtain wall insulation. Apply pressure sensitive aluminum foil-faced tape over all meeting edges of curtain

wall insulation and framing covers (Item 2H) so that approximately 2 in. covers each edge of the adjacent material. Install curtain wall insulation flush with the interior face of the aluminum framing (Item 2B). Install 24 in. wide curtain wall insulation without vertical seams, spanning the full length between aluminum framing (Item 2B). Locate horizontal seams in the curtain wall insulation at least 6 in. from the top surface of the perimeter joint protection (Item 3). Maintain 1-1/4 in. air cavity between curtain wall insulation and the spandrel panel (Item 2D). Option: In lieu of filling the full depth of the stud cavity with 4 in. thick, 4 pcf density curtain wall insulation, use either min. 3 in. thick 6 pcf density, or 2 in. thick 8 pcf density curtain wall insulation mechanically secured (do not secure by friction fit). Install perimeter fire barrier reinforcement (Item 2F). Use only Intertek certified products meeting the above min. requirements.

- H. **FRAMING COVERS** – Make framing covers of nominal 4 in. wide strips of 8 pcf density mineral wool batt insulation faced on one side with aluminum foil scrim (vapor retarder) which is exposed to the room interior. Center over each vertical framing member and secured to the member with impaling pins and clips spaced a max. 12 in. oc and attached in accord with Item 2E. Make framing covers below the perimeter joint protection (Item 3) nominal 2 in. thick, and those above the perimeter joint treatment nominal 1 in. thick. Do not pass framing covers through the perimeter joint protection (Item 3). Abut framing covers to the top and bottom surfaces of the perimeter joint protection (Item 3). Use only Intertek certified products meeting the above min. requirements.



- i. Secure panels with a thermal break (thermo-set rubber extrusion) pressure bar (aluminum extrusion), 1/4-20 x 5/8 in. long screws, and a snap face (aluminum extrusion). Insulate spandrel panels to Item 2F.

3. PERIMETER JOINT PROTECTION: Do not exceed an 8 in. nominal joint width (joint width at installation). Incorporate the following construction features for the perimeter joint protection (also known as perimeter fire barrier system):

- A. **PACKING MATERIAL** – Use a min. 4 in. thick, 4 pcf density, mineral wool batt insulation installed with the fibers running parallel to the edge of concrete floor assembly (Item 1) and curtain wall assembly (Item 2). Cut packing material width to achieve required compression, refer below, when installed in the nominal joint width. Compress the packing material into the perimeter joint. Tightly compress together splices (butt joints) in the lengths of packing material by using min. 1/4 in. compression per piece of packing material. When a spray coating or tape is used, locate the top surface of the packing material flush with the top surface of the concrete floor assembly (Item 1). When the non-sag or self-leveling silicone sealant is used, recess the top surface of the packing material 1/4 in. from the top surface of the concrete floor assembly (Item 1). Use only Intertek certified products meeting the above min. requirements.
 - i. When 50% compression is required, cut the width of the packing material 2 times wider than the nominal joint width.

- ii. When 33% compression is required, cut the width of the packing material 1-1/2 times wider than the nominal joint width.
- iii. When 25% compression is required, cut the width of the packing material 1-1/3 times wider than the nominal joint width.

B. CERTIFIED MANUFACTURER – 3M Company

CERTIFIED PRODUCT – FireDam™ or Fire Barrier™

MODEL – FD Spray 200 (Elastomeric, Sprayable), Fire Barrier Watertight Spray (Elastomeric, Sprayable), or Fire and Water Barrier Tape FWBT (Tape) or FB 1000 N/S Silicone Sealant (Non-sag) or FB 1003 S/L (Self-leveling) Sealant

FILL, VOID, OR CAVITY MATERIAL – Apply either spray coating or sealant over the packing material (Item 3A) as follows:

SPRAY COATING – Spray apply the liquid to cover the exposed top surface of the packing material (Item 3A) compressed and installed in the perimeter joint. Apply a min. wet film thickness of 1/8 in. FireDam Spray 200 or 1/10 in. Fire Barrier Watertight Spray and overlap the spray coating a min. 1/2 in. onto the adjacent curtain wall assembly (Item 2) and concrete floor assembly (Item 1). When the spraying process is stopped and the applied spray coating cures to an elastomeric film before installation process is restarted, then overlap the edge of the cured spray coating at least 1/8 in. with the liquid spray coating.



TAPE – Apply the tape such that there is a min. 1 in. overlap onto the adjacent curtain wall assembly (Item 2) and the concrete floor assembly (Item 1). Overlap joints in the tape system by 1/2 in.

SEALANT – Apply non-sag or self-leveling sealant to cover the exposed surface of the packing material (Item 3A) compressed and installed in the perimeter joint. Apply min.

1/4 in. thickness non-sag or self-leveling sealant over the packing material (Item 3A) and finish flush with the top surface of the concrete floor assembly (Item 1).